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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/086,780	02/28/2002	Outi Hiironniemi	28212/000S015-US0	8960
38879	7590	11/16/2006	EXAMINER	
DARBY & DARBY P.C. P.O. BOX 5257 NEW YORK, NY 10150-6257			NGUYEN, TOAN D	
			ART UNIT	PAPER NUMBER
			2616	

DATE MAILED: 11/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/086,780

Applicant(s)

HIIRONNIEMI, OUTI

Examiner

Toan D. Nguyen

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 01 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-22 is/are allowed.
- 6) ☒ Claim(s) 23-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 23-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zavalkovsky et al. (US 6,822,940) in view of Lu et al. (US 6,473,815).

For claims 23, 25, and 26, Zavalkovsky et al. disclose method and apparatus for adapting enforcement of network quality of service policies based on feedback about network conditions, comprising:

establishing a mapping (figure 4B, reference 420) of the received packet to an associated queue (figure 4B, references 404, 406 and 408) based on the kind of data included with the received packet (col. 11 lines 54—55); and

forwarding the received packet to the final destination (col. 7 lines 40-44) based at least in part on at least one of the following: an associated queue weight that is associated with the associated queue and an unassociated queue weight that is associated with the unassociated queue (figure 3, references 302 and 304, col. 9 lines 17-48).

However, Zavalkovsky et al. do not expressly disclose:

determining whether the associated queue is overloaded based at least in part on a comparison of a threshold and a loading difference between the associated queue

and an unassociated queue that is not associated with the kind of data included in the received packet; and

changing the mapping of the received packet to the unassociated queue if the associated queue is overloaded and an operational logic is valid.

In an analogous art, Lu et al. disclose:

determining whether the associated queue is overloaded based at least in part on a comparison of a threshold (figure 5, references 402, 404, and 406, col. 4 lines 39-41), and a loading difference between the associated queue and an unassociated queue that is not associated with the kind of data included in the received packet (figure 5, col. 1 lines 37-44, col. 4 line 64 to col. 5 line 11, and col. 5 lines 12-40); and

changing the mapping of the received packet to the unassociated queue if the associated queue is overloaded and an operational logic is valid (figure 8, reference step 1002, 1006, 1008 and 1012, col. 7 line 57 to col. 8 line 2).

Lu et al. disclose wherein a validity of the operational logic is based at least on a comparison between an associate queue characteristic comprising a forwarding priority and a traffic aggregation value for the associated queue; and an unassociated queue characteristic comprising another forwarding priority and another traffic aggregation value for the unassociated queue (col. 4 line 64 to col. 5 line 11, and col. 5 lines 12-40 as set forth in claim 25); enabling automated provisioning of at least one of the following: a forwarding priority value, a traffic aggregation value and a weight, for a selected queue from the associated queue and the unassociated queue, wherein the

automated provisioning is based at least in part on the kind of data included in the received packet (col. 4 line 64 to col. 5 line 11 as set forth in claim 26).

One skilled in the art would have recognized the determining whether the associated queue is overloaded based at least in part on a loading difference between the associated queue and an unassociated queue that is not associated with the kind of data included in the received packet, and would have applied Lu et al.'s buffer thresholds in Zavalkovsky et al.'s resource mapping 420. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Lu et al.'s queue sharing in Zavalkovsky et al.'s method and apparatus for adapting enforcement of network quality of service policies based on feedback about network conditions with the motivation being to provide the queue sharing apparatus 300 avoids dropping data packets by utilizing the bandwidths of other class queues, if available, to avoid degradation of performance in either quality of transmission or transmission bandwidth (col. 4 lines 59-63).

For claim 24, Zavalkovsky et al. disclose allocating resources for forwarding the received packet based at least in part on the associated weight and the unassociated queue weight, wherein each weight is unchanged during the forwarding (figure 4A, col. 11 lines 13-24).

For claim 27, Zavalkovsky et al. disclose wherein the kind of data included with the received packet is based at least in part on a connection associated with the received packet (figure 2, col. 7 lines 34-38).

For claim 28, Zavalkovsky et al. disclose wherein the mapping is based on Diffserv code points (col. 3 line 48).

For claims 29 and 30, Zavalkovsky et al. disclose method and apparatus for adapting enforcement of network quality of service policies based on feedback about network conditions, comprising:

mapping (figure 4B, reference 420) a received packet to an associated queue (figure 4B, references 404, 406 and 408) based on a kind of data included with the received packet (col. 11 lines 54—55).

However, Zavalkovsky et al. do not expressly disclose:

re-mapping the received packet to an unassociated queue unassociated with the kind of data included in the received packet based at least in part on a comparison of a threshold and a loading difference, a forwarding priority, and a traffic aggregation value of a plurality of queues, wherein the plurality of queues includes the associated queue and the unassociated queue; and

forwarding the received packet based at least in part on a traffic flow of the unassociated queue.

In an analogous art, Lu et al. disclose:

re-mapping (figure 5, col. 4 line 64 to col. 5 line 11) the received packet to an unassociated queue unassociated with the kind of data included in the received packet based at least in part on a comparison of a threshold (figure 5, references 402, 404, and 406, col. 4 lines 39-41) and a loading difference (col. 5 lines 12-40), a forwarding priority, and a traffic aggregation value of a plurality of queues, wherein the plurality of

queues includes the associated queue and the unassociated queue (figure 8, reference step 1002, 1006, 1008 and 1012, col. 1 lines 37-44, and col. 7 line 57 to col. 8 line 2); and

forwarding the received packet based at least in part on a traffic flow of the unassociated queue (figure 8, reference step 1012, col. 8 lines 1-2).

Lu et al. disclose wherein the threshold is automatically configured at least in part on a traffic flow of a plurality of packets (figure 5, col. 4 lines 39-54, and col. 5 lines 12-40 as set forth in claim 30).

One skilled in the art would have recognized the re-mapping the received packet to an unassociated queue unassociated with the kind of data included in the received packet based at least in part on a loading difference, a forwarding priority, and a traffic aggregation value of a plurality of queues, wherein the plurality of queues includes the associated queue and the unassociated queue, and would have applied Lu et al.'s buffer thresholds in Zavalkovsky et al.'s resource mapping 420. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Lu et al.'s queue sharing in Zavalkovsky et al.'s method and apparatus for adapting enforcement of network quality of service policies based on feedback about network conditions with the motivation being to provide the queue sharing apparatus 300 avoids dropping data packets by utilizing the bandwidths of other class queues, if available, to avoid degradation of performance in either quality of transmission or transmission bandwidth (col. 4 lines 59-63).

***Allowable Subject Matter***

3. Claims 1-22 are allowed.

Regarding claim 1, the prior art fails to teach a combination of the steps of:

(b) providing a threshold that is compared to a differential that represents loading differences between a queue associated with the kind of data included in the received packet and another queue that is unassociated with the kind of data included in the received packet, wherein the queue associated with the kind of data included in the received packet is overloaded when the differential exceeds the threshold; and

(c) when the differential exceeds the threshold and operational logic is valid, automatically changing the mapping of the received packet from the queue to the other queue, wherein the other queue is less loaded than the queue associated with the kind of data included in the received packet when the differential exceeds the threshold, in the specific combination as recited in the claim.

Regarding claim 11, the prior art fails to teach a combination of the steps of:

(c) a remapper that compares a provided threshold to a differential that represents loading differences between a queue associated with the kind of data included in the received packet and another queue that is unassociated with the kind of data included in the received packet, wherein the queue associated with the kind of data included in the received packet is overloaded when the differential exceeds the threshold, wherein the remapper automatically changes the mapping of the received packet from the queue to the other queue when the differential exceeds the threshold and operational logic is valid, wherein the other queue is less loaded than the queue



associated with the kind of data included in the packet when the differential exceeds the threshold, in the specific combination as recited in the claim.

Regarding claim 22, the prior art fails to teach a combination of the steps of:

(b) means for providing a threshold that is compared to a differential that represents loading differences between a queue associated with the kind of data included in the received packet and another queue that is unassociated with the kind of data included in the received packet, wherein the queue associated with the kind of data included in the received packet is overloaded when the differential exceeds the threshold; and

(c) means for automatically changing the mapping of the received packet from the queue to the other queue when the differential exceeds the threshold and operational logic is valid, wherein the other queue is less loaded than the queue associated with the kind of data included in the packet when the differential exceeds the threshold, in the specific combination as recited in the claim.

### ***Response to Arguments***

4. Applicant's arguments filed 09/01/06 have been fully considered but they are not persuasive.

The applicant argues on page 10, first paragraph, that Lu does not teach or suggest "determining whether the associated queue is overloaded based at least in part on a comparison of a threshold and a loading different between the associated queue and an associated queue that is not associated with the kind of data included in the received packet," as recited in amended claim 23. The examiner disagrees. Applicant's

attention is directed to Lu patent at col. 1 lines 37-44 where Lu clearly teaches: "When higher class queues are full, overflow data (associated queue is overloaded means) from the higher class queues may also be placed in lower class queues. However, to maintain higher class performances, a higher class threshold may be generated for each lower class queue (comparison of a threshold and a loading difference between the associated queue and an unassociated queue means) so that if the lower class queue can not meet a corresponding higher class threshold, the lower class queue is considered full with respect to the higher class data." Lu teaches further comparison of a threshold and a loading difference between the associated queue and an unassociated queue in details at col. 5 lines 12-40 (see figure 5).

On page 10, third paragraph, the applicant argues that the addition of the "comparison" and the "threshold" elements to amended claim 23 makes this element of claim 23 similar, albeit, different that the novel and non-obvious element of allowed claim 1, and at least for these reasons, amended claim 23 is not made obvious based on Zavalkovsky in view of Lu. The examiner disagrees. In claim 23, the limitation "the received packet is overloaded when the differential exceeds the threshold" is not claimed in the claim. Therefore, the rejection of claim 23 is retained.

On page 10, fourth paragraph, amended claim 29 recites similar, albeit different limitations as claim 23. The examiner refers to the same response above in claim 23.

### ***Conclusion***

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

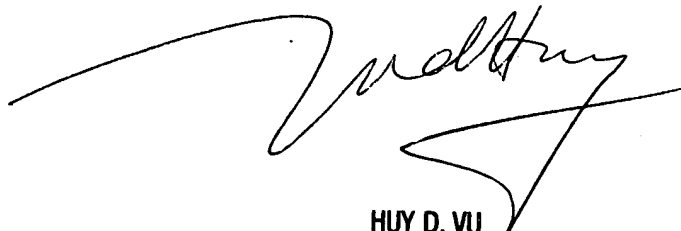
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toan D. Nguyen whose telephone number is 571-272-3153. The examiner can normally be reached on M-F (7:00AM-4:30PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Huy Vu can be reached on 571-272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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TN



HUY D. VU  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800